

# Service Manual

# Nakamichi BX-100 BX-100E

2 Head Cassette Deck



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# GENERAL

1.1. Voltage Selector
Voltage selector is installed on the rear panel for Other version of the Nakamichi BX-100.
This voltage selector can select either 120 V or 220-240 V at customer's disposal,

# 1.2. Packing Materials and Owner's Manual

Part No.	Description	Q'ty
0F03736A	Carton Box BX-100 (Silver)	1
0F03750A	Carton Box BX-100E (Silver)	1
OF03737A	Carton Box BX-100 (Black)	1
0F03751A	Carton Box BX-100E (Black)	1
OF03674B	Packing	2
0D04311A	Owner's Manual (BX-100 (U.S.A., Canada & Australia) & BX-100E (UK))	1
0D04317A	Owner's Manual (BX-100 (Others) & BX-100E (220V Class 2))	1

# 1.3. Serial Number

The BX-100 has two versions, Silver and Black.

In the service manual, serial numbers of these versions are identified as follows:

Silver version: A318xxxxx

Black version: A319xxxxx

However, the actual serial number on the serial number plate of the BX-100 is indicated as A318.9xxxxx.

The serial number begins with A318.901001.

### MECHANICAL ADJUSTMENTS 2.

### 2.1. Tape Guide Height Check for Record/Playback Head and Erase Head

With use of an M-300 produced by Information Terminals, tape guide height check for the Record/Playback and Erase Heads shall be made, wherein a small block shall be pushed straight down to the base while in use of the M-300. Refer to Fig. 2.1.

### (1) Record/Playback Head Tape Guide Height

- Load the base of the M-300 carefully, then set the cassette deck in Play mode.
- Place the small block of the M-300 on the base.
- Slide the small block against the tape guide of the Record/ Playback Head, and check to insure that the block is accepted by the tape guide.
- (d) If not, loosen the screw and insert a shim (either 30  $\mu$ m (OC80048A), 60  $\mu$ m (OC80038A), or 100  $\mu$ m (OC80039A)) to raise the Record/Playback Head, then tighten and apply a quantity of lock tight paint to the screw.

# (2) Erase Head Tape Guide Height

- Load the base of the M-300 carefully, then set the cassette deck in Play mode.
- Place the small block of the M-300 on the base.
- Slide the small block against the tape guide of the Erase Head, and check whether the block is accepted by the tape guide.

### 2.2. Head Base Stroke Check

# Refer to Fig. 2.2.

- (1) Load the base of the M-300 carefully, then push the base toward the Record/Playback Head to eliminate the clearance between the reference pin and the base.
- Set the cassette deck in Play mode.
- Place the small block of the M-300 on the base.
- Contact the small block with the Record/Playback Head surface and the Erase Head surface, and check whether the end of the small block is located within the specified tolerance as shown in the figure.

### 2.3. Record/Playback Azimuth-Alignment and Height Check Refer to Fig. 2.1.

- (1) Connect a VTVM to the Output Jacks.
- (2) Load a 15 kHz Azimuth Tape (DA09004B), then set the cassette deck in Play mode.
- Tum the Azimuth Alignment Screw until the outputs of both channels become maximum.
- Load a 1 kHz Track Alignment Tape (DA09007B), then set the cassette deck in Play mode.
- Check to insure that the readings of both channels on the VTVM are below -25 dB. If not, replacement of the Record/Playback Head will be
- required. Apply a quantity of lock tight paint to the Azimuth Align-

# 2.4. Pressure Adjustment of Pressure Roller

# Refer to Fig. 2.3.

- (1) In Play mode, measure the torque of the Pressure Roller and check whether the torque is in a range of 320 ±50 g-cm.
- If torque is out of the range, correct it by changing the installation point of the Pressure Roller Spring.

### 2.5. Tape Travelling Check

Load the Tape Travelling Cassette (DA09027B), then set the cassette deck in Play mode and check the following:

- (1) After more than 2 seconds, the fluctuation of the tape travelling on the Record/Playback Head is small.
- Tape is in contact with the head sufficiently.

  Tape waving is small on the heads and pressure roller. (3)

# 2.6. Eject Damper Adjustment

Refer to Fig. 2.4. Load a cassette tape, and with opening the Cassette Case by pressing the Eject button and closing it by hand, adjust the speed of damper movement by the Adjustment Screw.

- CCW: Damper moves fast.
- Damper moves slowly.

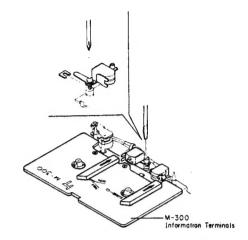


Fig. 2.1

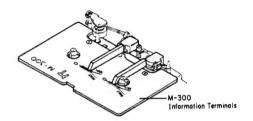


Fig. 2.2



Fig. 2.3

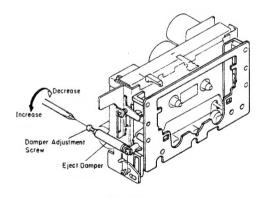


Fig. 2.4

- 2.7. Reel Motor Speed Adjustment in Play Mode
- (1) To warm-up the cassette deck, load a C-60 cassette tape and set the cassette deck in Play mode.
- (2) After more than four minutes, load a torque meter TW-211 (made by Sony) and set the cassette deck in Play mode.
- (3) Adjust VR601 on the Main P.C.B. Ass'y to obtain exactly 50 g-cm on the torque meter.

# 2.8. Tape Speed Adjustment

Refer to Fig. 2.5.

- (1) Connect a frequency counter to the Output Jacks.
- (2) Load a 3 kHz Speed and Wow/Flutter Tape (DA09006C) and play it back.
- Adjust the Tape Speed Adjustment Volume incorporated in the Capstan Motor to obtain 3,000 Hz on the frequency counter.

CCW: Motor drives slowly. CW: Motor drives fast.

### 2.9. Lubrication

The tape transport is of a lubrication-free type mechanism, When the following parts are replaced, apply the specified lubricant.

(1) Molykote ® Grease (X5-6020) Cam Motor Pulley

Thrust portion on the Capstan Shaft

(2) FLOIL GB-TS-1

Washer between Reel Hub Ass'y and Back Tension Spring

(3) Diamond Oil (EP56)

Reel Hub Shaft

(4) Anderol 456

Capstan Shaft Note: We suggest that you use the above specified lubricant or equivalent type.

- The company dealing in the above lubricant is as follows:

  (a) Molykote R Grease (X5-6020)

  Dowcorning Co., Ltd., 1-15-1 Nishishinbashi, Minatoku, Tokyo, Japan

  (b) FLOIL GB-TS-1
- Kanto Chemicals Co., Ltd., 2-7 Kanda Sakuma-cho, Chiyoda-ku, Tokyo, Japan Diamond Oil (EP-56)
- Mitsubishi Oil Co., Ltd., 1-2-4 Toranomon, Minato-ku, Tokyo, Japan
- Anderol 456 (d) Toyo Kokusai Oil Co., Ltd., 3-3-5 Hatchobori, Chuoku, Tokyo, Japan

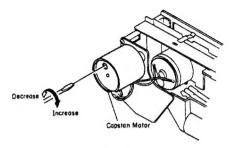


Fig. 2.5

# 3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

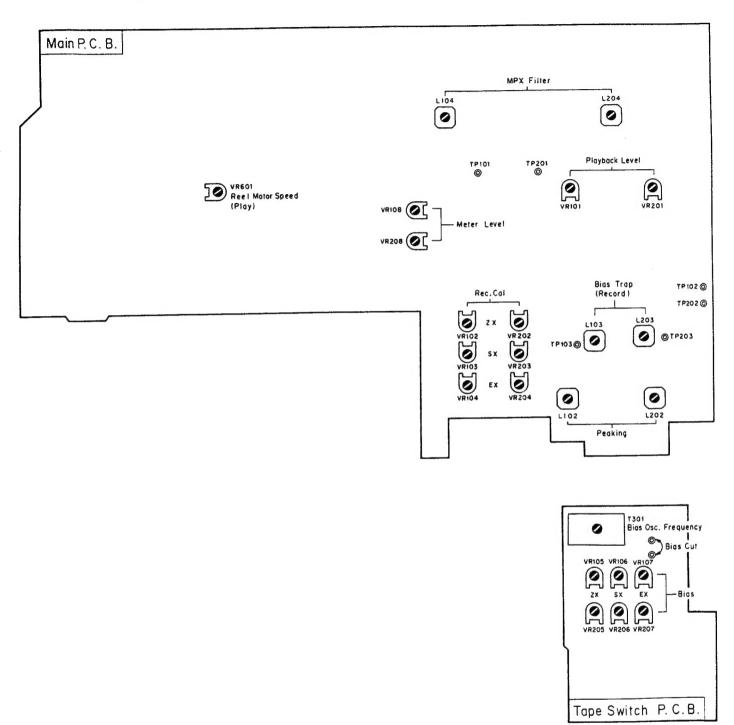


Fig. 3

# ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

Note: Electrical adjustment should be performed after mechanical adjustment is completed. 4.1. Adjustment and Measurement Instructions

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST- MENT	REMARKS
1	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006C)	Frequency Counter to Output Jacks	Playback Eq. SW — 70 μs	Tape Speed Adjustment Volume	Adjust the volume incorporated in the capstan motor to obtain 3 kHz $\pm 0.5\%$ on the frequency counter.
2	Meter Level Calibration	400 Hz to Input Jacks	VTVM to TP101, TP201 on Main P.C.B.	Record, Pause	Main P.C.B. VR108,VR208	<ol> <li>Feed in 400 Hz, then adjust the Input Level control to obtain 90 mV -0.8 dB on the VTVM.</li> <li>Adjust VR108 (VR208) so that the 0 dB segment of the level meter starts illuminating.</li> <li>Adjust the Input Level control to obtain 90 mV on the VTVM, then decrease the generator output level by 20 dB.</li> <li>Check to insure that the segment for -20 dB illuminates.</li> </ol>
3	MPX Filter Adjustment	400 Hz and 19 kHz ±100 Hz to Input Jacks	VTVM to Output Jacks	Record, Pause	Main P.C.B. L104,L204	<ol> <li>Feed in 400 Hz and adjust the Input Leve control to obtain 0 dB (500 mV) on the VTVM.</li> <li>Feed in 19 kHz, then adjust L104 (L204) to obtain minimum reading on the VTVM (minimum reading will be less than -30 dB).</li> </ol>
4	Record/ Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004B)	VTVM to Output Jacks	Playback Eq. SW — 70 µs Dolby NR SW — OFF	Record/Playback Head Azimuth Alignment Screw	Adjust the Record/Playback Head Azimut Alignment Screw to obtain maximum reading of both channels on the VTVM.
5	Playback Level Calibration	400 Hz Level Tape (DA 09005B)	VTVM to TP101, TP201 on Main P.C.B.	Same as above	Main P.C.B. VR101,VR201	Adjust VR101 (VR201) to obtain 90 mV of the VTVM.
6	Playback Frequency Response Adjustment	400 Hz Level Tape (DA09005B) 10 kHz PB Frequency Response Tape (DA09003B) 15 kHz PB Frequency Response Tape (DA09002B) 20 kHz PB Frequency Response Tape (DA09001B)	VTVM to Output Jacks	Same as above	Main P.C.B. R110,R210 R195,R295	<ol> <li>Load a 400 Hz level tape and play it back.</li> <li>Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the record playback head azimuth to obtain maximur levels on the VTVM with each tape.</li> <li>Read the maximum levels with each tap and check to insure that the levels agains the 400 Hz level tape are within the following ranges.         If not, short R110 (R210) or R195 (R295 to obtain satisfactory results.         10 kHz (-20 dB) -2 dB to +2 dB 15 kHz (-20 dB) -2 dB to +3 dB 20 kHz (-20 dB) -2 dB to +4 dB Refer to the "Playback Frequency Response Adjustment" in item 4.2 for the detailed description.     </li> <li>Conduct step 4 "Record/Playback Hea Azimuth Alignment".</li> </ol>
7	Bias Oscillation Frequency and Erase Current Adjustment		Frequency Counter to TP102 on Main P.C.B. and VTVM across the additional 0.1 Ω resistor	Record, Pause Tape SW — ZX Eq. SW — 70 µs Dolby NR SW — OFF	Main P.C.B. T301 R318,R350	<ol> <li>Adjust T301 to obtain 105 kHz on the frequency counter.</li> <li>Connect an additional 0.1 Ω resistor series to the Erase Head, then connect VTVM across it.</li> <li>Check the erase current by the VTVM. Erase current will be in a range of 145 m to 185 mA (typically approx. 165 mA). If erase current is not sufficient, increasit by shorting R318 or R350.</li> <li>After completion of the erase current a justment, re-check the bias oscillation frequency.</li> <li>Remove the additional 0.1 Ω resistor.</li> </ol>
8	Record Amplifier Equalizer Adjustment	21 kHz (-20 dB) to Input Jacks	VTVM to TP102, TP202 on Main P.C.B.	Same as above	Main P.C.B. L102,L202	<ol> <li>Short both Bias Stop test pins with a clito stop the bias oscillation.</li> <li>Adjust L102 (L202) to obtain peak reading at 21 kHz on the VTVM.</li> <li>Remove the clip from the test pins.</li> </ol>
9	Bias Trap Adjustment (Record Amp.)	Remove input signals	VTVM to TP103, TP203 on Main P.C.B.	Same as above	Main P.C.B. L103,L203	Adjust L103 (L203) to obtain maximum reaing on the VTVM.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST- MENT	REMARKS
10	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (0 dB), 400 Hz (-20 dB), 10 kHz (-20 dB) and 17 kHz (-20 dB) to Input Jacks	VTVM to TP102, TP202 on Main P.C.B. and VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 µs (ZX/SX) 120 µs (EX) ON ON	VR104,VR204	Adjustment should be made in the order of ZX, SX and EX.  1. Set the Dolby NR switch to OFF. 2. Connect a VTVM to output Jacks. 3. Set the BX-100 in Record/Pause mode. 4. Feed in 400 Hz, then adjust the Input Level control to obtain 500 mV (0 dB) on the VTVM. 5. Load a reference ZX tape (DA09037A), reference SX tape (DA09025A) and reference EXII tape (DA09066A). 6. Adjust Record Cal. VR102 (VR202) for ZX, VR103 (VR203) for SX and VR104 (VR204) for EXII to center positions. 7. Connect the VTVM to TP102 (TP202) on the Main P.C.B. Ass'y. Adjust Bias VR105 (VR205) for ZX, VR106 (VR206) for SX and VR107 (VR207) for EXII to obtain the following bias current in Record/Pause mode (the VTVM is connected across a 10-ohm resistor).  ZX: approx. 1 mA SX: approx. 0.5 mA EXII: approx. 0.3 mA  8. Connect the VTVM to the Output Jacks. 9. Feed in 400 Hz (-20 dB) and 17 kHz (-20 dB), then record, rewind and play them back.  Adjust Bias VR105 (VR205) for ZX, VR106 (VR206) for SX and VR107 (VR207) for EXII to obtain the same play-back levels at 400 Hz (-20 dB) and 17 kHz (-20 dB) on the VTVM. 10. Feed in 400 Hz (0 dB), then record, rewind and play it back.  Adjust Record Cal. VR102 (VR202) for ZX, VR103 (VR203) for SX and VR104 (VR204) for EXII to obtain 0 dB on the VTVM. 11. Repeat above 9 and 10 two or three times to obtain optimum performance. 12. Set the Dolby NR switch to ON. 13. Feed in 400 Hz (-20 dB), 10 kHz (-20 dB) and 17 kHz (-20 dB) and 17 kHz (-20 dB) then record, rewind and play them back.  Check to insure that the playback levels are within ±2 dB against the levels in Dolby NR OFF. 14. Check to insure whether the total harmonic distortion is less than 1.0% for ZX and EXII tapes and 1.2% for SX tape. 15. If above is not sufficient, repeat 9 to 14 till satisfactory results are obtained.
11	Overall Frequency Response Adjustment	400 Hz (0 dB) and 20 Hz to 17 kHz (-20 dB) to Input Jacks	VTVM to Output Jacks	Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 µs (ZX/SX) 120 µs (EX) Dolby NR SW — OFF	Main P.C.B. L102,L202	<ol> <li>Set the BX-100 in Record/Pause mode.</li> <li>Feed in 400 Hz, then set the Input Level control to obtain 0 dB (500 mV) on the VTVM.</li> <li>Decrease the generator output control by 20 dB.</li> <li>Feed in 20 Hz to 17 kHz (-20 dB) and record, rewind and play them back, then check to insure whether the output levels are within -20 dB ±4 dB.</li> <li>If above is not sufficient, adjust L102 (L202) to obtain approx20 dB on the VTVM, then conduct step 10 "Record Level Calibration and Recording Bias Current Adjustment".</li> <li>If above is not sufficient, precise re-adjustment of step 6 "Playback Frequency Response", replacement of Record/Playback Head or check on item 2.5 "Tape Travelling Check" will be required.</li> </ol>
12	Crosstalk Measure- ment	1 kHz to Input Jacks	1 kHz Band Pass Filter and VTVM to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF		<ol> <li>Erase the tape with bulk eraser.</li> <li>Adjust the Input Level control to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A).</li> <li>Turn the cassette tape the other way round and play it back.</li> <li>Measure the difference between 2 and 3.</li> </ol>
13	Channel Separation Measure- ment	1 kHz to Input Jacks	Same as above	Same as above		1. Erase the tape with bulk eraser. 2. Adjust the Input Level control to obtain 0 dB on the VTVM, and set the Balance control to the extreme left (right). 3. Record, rewind and play it back, then measure the R ch (L ch) level.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST- MENT	REMARKS
14	Erasure Measure- ment	100 Hz to Input Jacks	100 Hz Band Pass Filter and VTVM to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF		<ol> <li>Erase the tape with bulk eraser.</li> <li>Adjust the Input Level control to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A).</li> <li>Rewind the tape, set the Input Level control to minimum, and then record again.</li> <li>Rewind the tape, play it back, and then measure the difference between 2 and 3.</li> </ol>
15	Signal to Noise Ratio Measure- ment	400 Hz to Input Jacks	IHF-A Curve, Filter, VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 µs Dolby NR SW — ON		<ol> <li>Set the Dolby NR switch to ON.</li> <li>Feed in 400 Hz, then record, rewind and play it back.</li> <li>Adjust the Input Level control to obtain 3% total harmonic distortion in Playback mode.</li> <li>Set the Input Level control to minimum then record again.</li> <li>After rewound, play back and check the output level difference between 3 and 4.</li> <li>Note: The filter of IHF-A curve shall be used in the measurements.</li> </ol>
16	Total Harmonic Distortion Measure- ment	400 Hz to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 µs (ZX/SX) 120 µs (EX) Dolby NR SW — OFF		1. Adjust the Input Level control to obtain 0 dB on the VTVM. 2. Record, rewind and play it back. 3. Read the distortion meter and check to insure that the distortion is as follows:  EXII 1.0% or less  SX 1.2% or less  ZX 1.0% or less
17	Wow/ Flutter Measure- ment	3 kHz Speed and Wow/ Flutter Tape (DA09006C)	Wow/Flutter Meter to Output Jacks	Playback Eq. SW — 70 μs		Play back and read the wow/flutter meter.

4.2. Playback Frequency Response Adjustment
Figs. 4.1 and 4.2 show the playback amp. circuit for adjustment
and the playback equalization curve.
This adjustment will be required if playback level is not sufficient
during playing back a 20 kHz PB frequency response tape.

The peaking portion of the equalization curve compensates the gap loss of the playback head. Peaking level is varied by the short circuit of R110 (R210) or R195 (R295).

Fig. 4.1

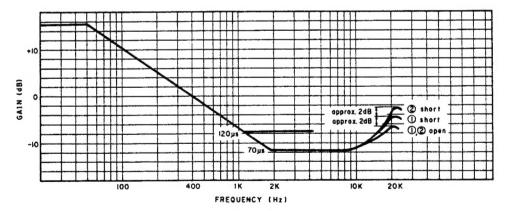


Fig. 4.2

# 4.3. Dolby NR Circuit Check

Dolby NR circuit incorporates a Dolby NR IC (µA7300PC) which has no adjustment point.

Perform the following checks and make sure that the IC operates accurately i.e., frequency response through IC is accurate.

Signal Source: 1.4 kHz to Input Jacks

Signal Source: 1.4 kHz to Input Jacks
Output Connection: VTVM to TP101 (TP201) and negative side of C141 (C241) on the Main P.C.B.

Record/Pause

Mode:

- (1) Connect a VTVM to TP101 (TP201) on the Main P.C.B.
  Ass'y. Feed in 1.4 kHz and adjust the Input level control so that the VTVM may read 90 mV (0 dB) at each test point. Level meter will indicate 0 dB.
- Level meter will indicate 0 dB.

  (2) Remove the VTVM from TP101 (TP201) and reconnect it to the negative side of C141 (C241).

  (3) Decrease the input level (0 dB) by 20 dB or 30 dB.

  Check to insure that the level at negative side of C141 (C241). corresponds to the following with the Dolby NR switch ON and OFF.

Input Level	Level at negative	side of C141 (C241)
at TP101 (TP201)	Dolby NR OFF	Dolby NR B-Type
9 mV	0 dB	+3.2 dB ±1.5 dB
2.85 mV	0 dB	+8.2 dB ±1.5 dB

# 5. MECHANISM ASS'Y AND PARTS LIST

# 5.1. Synthesis

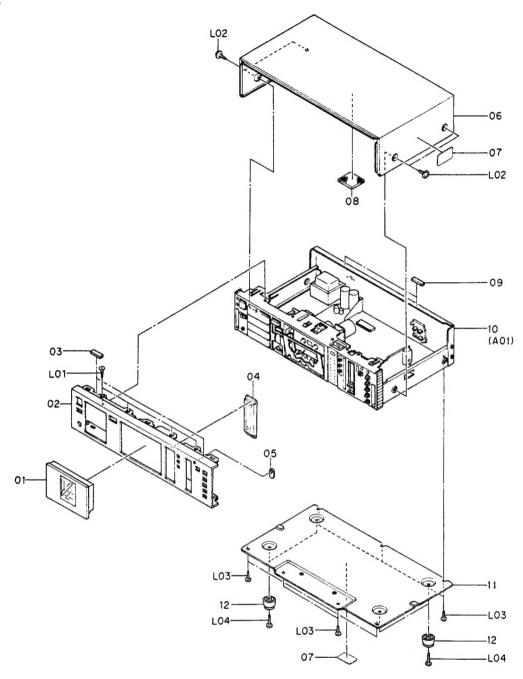


Fig. 5.1

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qt
		Synthesis Serial No.: A 31801001 - (Silver)				Synthesis Serial No.: A31901001 - (Black)	
01	HA04494A	Cassette Case Cover Ass'y	1 1	01	HA04495A	Cassette Case Cover Ass'y	1
02	OH04263A	Front Panel BX-100	1 1	02	0H04264A	Front Panel BX-100	1
	0H04358A	Front Panel BX-100E	1 1		0H04359A	Front Panel BX-100E	1
03	0J04628A	Top Cover Cushion (Front)	2	03	0J04628A	Top Cover Cushion (Front)	2
04	0H04306A	Meter Cover	1	04	0H04306A	Meter Cover	1
05	0H04240A	Control Lens	1 1	05	OH04240A	Control Lens	1
06	OH04155B	Top Cover	1 1	06	0H04156B	Top Cover	1
07	OM04377A		1	07	OM04377A	Caution Label	1
80	0J04630A	Top Cover Rubber	1	08	0J04630A	Top Cover Rubber	1
09	OJ04629A	Top Cover Cushion (Rear)	1	09	0J04629A	Top Cover Cushion (Rear)	1
10 11	_	Synthesis Mechanism Ass'y	1 1	10	0.70.45.00.4	Synthesis Mechanism Ass'y	1
	0J04762A	Bottom Cover	1 1	11	0J04762A	Bottom Cover	1
12	0J03564A	Leg T-H	4	12	0J03564A	Leg T-H	4
L01	0E03054A	BT 3x8 @Countersunk	4 1	L01	0E03054A	BT 3x8   Countersunk	4
L02	0E03033A	BT 4x8 @Pan Washer-Faced	4 7	L02 L03	0E03033A	BT 4x8 @Pan Washer-Faced	7
L03 L04	0E00868A	BT 3x8 @ Binding	4	L03	0E00868A 0E00865A	BT 3x8   Binding  BT 3x10   Binding	4
	0E00865A	BT 3x10 ⊕ Binding	1 " 1	204	OLUUGOOA	PI 2XIO & Pinging	-

# 5.2. Synthesis Mechanism Ass'y (A01)

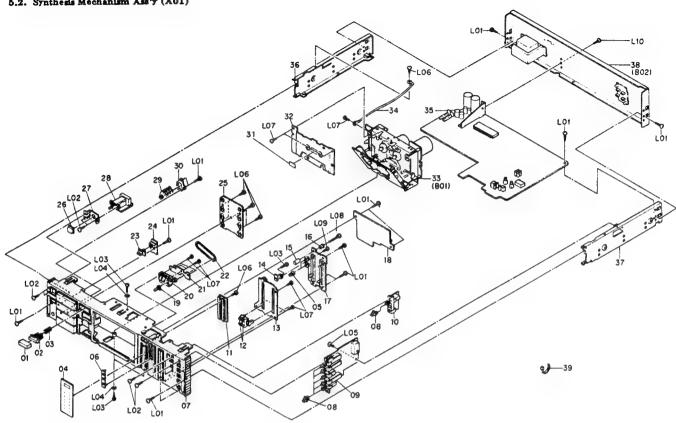
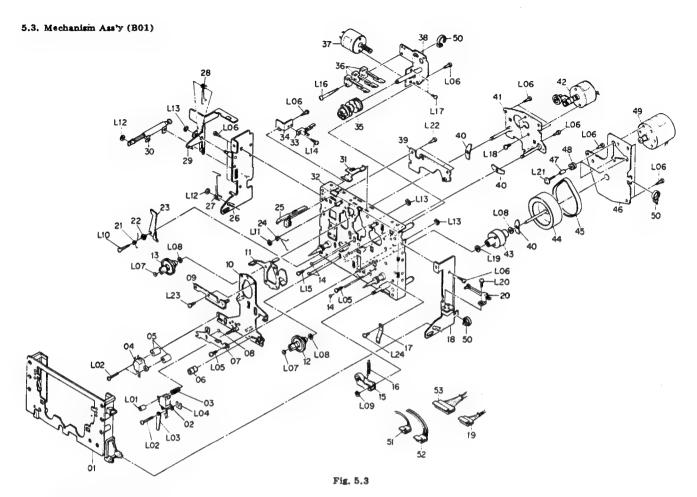
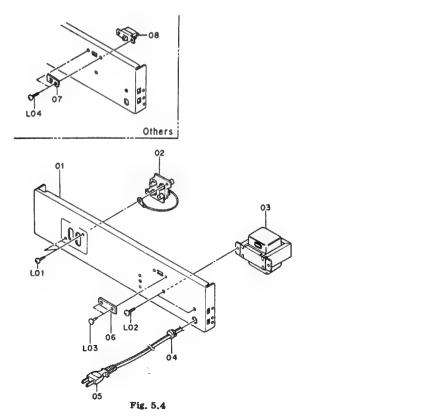


Fig. 5.2

A01			,		1	1	J
		Synthesis Mechanism Ass'y Serial No.: A31801001 - (Silver)	1	A01		Synthesis Mechanism Ass'y Serial No.: A31901001 - (Black)	T
01	0H04270A	Eject Button	1	01	0H04269A	Eject Button	
02	0J04766A	Button Joint	1	02	0J04766A	Button Joint	
03	0J04765A	Spring	1	03	0J04765A	Spring	
04	0H04277A	Meter Scale	1	04	OH 04277A	Meter Scale	
05	0H04272A	Memory Switch Knob	2	05 06	0H04271A 0H04275A	Memory Switch Knob Counter Escutcheon	
06 07	0H04276A HA04522A	Counter Escutcheon Front Chassis Sub Ass'y	1 1	07	HA04523A		Ì
08	0H04288A	Push Switch Button	5	08	0H04248A		
09	BA05073A	Tape Switch P.C.B. Ass'y	1	09	BA05073A	Tape Switch P.C.B. Ass'y	
10	BA05076A	Dolby NR Switch P.C.B. Ass'y	1	10	BA05076A		1
11	BA05089A	Indicator P.C.B. Ass'y	1	11 12	BA05089A	Indicator P.C.B. Ass'y Volume Knob	
12	0H04289A	Volume Knob	2	13	0H04247A 0H04283A	Volume Plate	Ì
13 14	0H04283A 0J04767A	Volume Plate Memory Switch Holder	i	14	0J04767A	Memory Switch Holder	
15	0J04703A	P.C.B. Spacer A	i	15	0J04703A	P.C.B. Spacer A	
16	0J04704A	P.C.B. Spacer B	1	16	0J04704A	P.C.B. Spacer B	-
17	BA05075A	Volume P.C.B. Ass'y	1	17 18	BA05075A	Volume P.C.B. Ass'y	
18	BA05074A	Indicator P.C.B. Ass'y	1		BA05074A 0H04273A	Indicator P.C.B. Ass'y Counter Knob	
19	0H04274A	Counter Knob	1 1	19 20	0C08602A	Tape Counter	ł
20 21	0C08602A 0J04764A	Tape Counter Counter Holder	i	21	0J04764A	Counter Holder	
22	0C08604A	Counter Belt	î	22	0C08604A	Counter Belt	
23	0H04309A	Slide Switch Knob	î	23	0H04242A	Slide Switch Knob	
24	BA05078A	Timer Switch P.C.B. Ass'y	1	24	BA05078A	Timer Switch P.C.B. Ass'y	
25	BA05077A	Control Switch P.C.B. Ass'y	1	25	BA05077A	Control Switch P.C.B. Ass'y	
26	0H04290A	Power Switch Button	1	26 27	0H04243A 0J04763A	Power Switch Button Power Switch Holder	
27	0J04763A	Power Switch Holder	1	28	BA04823A	Power Switch P.C.B. Ass'y	
28	BA04823A	Power Switch P.C.B. Ass'y (BX-100 (U.S.A. & Canada))	*	20	Dirogonom	(BX-100 (U.S.A. & Canada))	1
	BA04824A	Power Switch P.C.B. Ass'y (BX-100 (Australia & Others)	1		BA04824A	Power Switch P.C.B. Ass'y (BX-100 (Australia & Others)	
		& BX-100E)	1	29	0B08511A	& BX-100E) Headphone Jack	1
29 30	0B08511A 0J04611A	Headphone Jack Headphone Plate	1	30	0J04611A	Headphone Plate	
31	0M04196A	Cassette Label	ī	31	0M04196A	Cassette Label	
32	OH04154B	Cover Plate	1	32	0H04154B	Cover Plate	
33	CA08498A	Mechanism Ass'y	1	33	CA08498A	Mechanism Ass'y	
34	BA05131A	Earth Wire	1 1	34	BA05131A		
35	BA05063A	Main P.C.B. Ass'y	1	35 36	BA05063A 0J04603E	Main P.C.B. Ass'y Side Chassis (L)	
36 37	0J04603E 0J04773A	Side Chassis (L)   Side Chassis (R)	i	37	0J04773A	Side Chassis (R)	
38	HA04499A	Rear Panel Ass'y BX-100	î	38	HA04505A		
	HA04502A	(U.S.A. & Canada) Rear Panel Ass'y BX-100	1		HA04508A	(U.S.A. & Canada) Rear Panel Ass'y BX-100	
	HA04501A	(Australia) Rear Panel Ass'y BX-100 (Others)	1		HA04507A	(Australia)   Rear Panel Ass'y BX-100 (Others)	
	HA04498A HA04503A	Rear Panel Ass'y BX-100E (UK) Rear Panel Ass'y BX-100E	î		HA04504A HA04509A	Rear Panel Ass'y BX-100E (UK) Rear Panel Ass'y BX-100E	
39	0B08515A	(220V Class 2) Insu-lock	1	39	0B08515A	(220V Class 2) Insu-lock	
	0B82116B	Ribbon Cable 2P (160mm)	2		0B82116B	Ribbon Cable 2P (160mm)	
	0B82117B	Ribbon Cable 2P (220mm)	3	_	0B82117B	Ribbon Cable 2P (220mm)	-
	OB82118B	Ribbon Cable 2P (300mm)	2	_	0B82118B	Ribbon Cable 2P (300mm)	
-	0B82121B	Ribbon Cable 3P (330mm)	1		0B82121B	Ribbon Cable 3P (330mm)	ı
-	0B82122B	Ribbon Cable 3P (360mm) Ribbon Cable 3P (410mm)	1 1		0B82122B 0B82124B	Ribbon Cable 3P (360mm) Ribbon Cable 3P (410mm)	
_	0B82124B 0B82125B	Ribbon Cable 4P (300mm)	2	_	0B82125B	Ribbon Cable 4P (300mm)	1
	0B82126B	Ribbon Cable 4P (360mm)	ī	_	0B82126B	Ribbon Cable 4P (360mm)	
	0B82129B	Ribbon Cable 6P (280mm)	1	_	0B82129B	Ribbon Cable 6P (280mm)	
-	0B82220A	Ribbon Cable 3P (160mm)	1	_	0B82220A	Ribbon Cable 3P (160mm)	
- A9	0B82219A 0E00868A	P-D Connector Ass'y	1 15	L01	OB82219A OE00868A	P-D Connector Ass'y BT 3x8 @ Binding	1:
L01 L02	0E00766A	BT 3x8 $\oplus$ Binding M3x8 $\oplus$ Binding	6	L02	0E00766A	M3x8   Binding	'
L03	0E03074A	BT 2.6x8 # Binding	3	L03	0E03074A	BT 2.6x8   Binding	
L04	0E00233A	Washer 2.6mm Toothed Lock	2	L04	0E00233A	Washer 2.6mm Toothed Lock	
L05	0B08583A	Plastic Rivet	1	L05	0B08583A	Plastic Rivet	
L06	0E00857A	BT 3x6 ⊕ Binding	7	L06 L07	0E00857A 0E00859A	BT 3x6 $\oplus$ Binding BT 2,6x6 $\oplus$ Binding	1:
L07 L08	0E00859A 0E00835A	BT 2.6x6 ⊕ Binding BT 3x25 ⊕ Pan	10 1	LO8	0E00835A	BT 3x25 @ Pan	
L09	0E03070A	M2.6x6 $\oplus$ Binding	i	L09	0E03070A	M2.6x6 ⊕ Binding	
L10	0E03028A	BT 3x8   Binding (Nickel)	ī	L10	0E00921A	BT 3x8 ⊕ Binding	
						(Black Chromate)	
						_	
				-			



# 5.4. Rear Panel Ass'y (B02)



chematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Q.
B01	CA08498A	Mechanism Ass'y Serial No.: A318.901001 -	1	B02	HA04499A	Rear Panel Ass'y BX-100 (U.S.A. & Canada)	1
		50112110111101010101			HA04501A	Rear Panel Ass'y BX-100 (Others)	1
01	CA80001A	Cassette Case Ass'y	1		HA04502A	Rear Panel Ass'y BX-100	1
02	0G01371A	Record/Playback Head RP-2G	1 1		HA04498A	(Australia)	١,
03 04	0C80001A 0G01365A	Azimuth Adjust Spring Erase Head E-2D	1 1		HA04503A	Rear Panel Ass'y BX-100E (UK) Rear Panel Ass'y BX-100E	1
05	0C80044A	Erase Head Collar	2			(220V Class 2)	^
06	0C80045A	Record/Playback Head Collar	1			Serial No.: A31801001 - (Silver)	
07	0C80003A	Head Base Hold Plate	1	0.1	077040004	D D 1 DV 100	١.
08 09	0C80004A 0C80005A	Steel Ball 30 Reinforce Plate	1 1	01	0H04298A 0H04362A	Rear Panel BX-100 Rear Panel BX-100E	1
10	0C80006A	Head Base	î	02	0B81001A	4P Pin Jack	
îi	CA80002A	Brake Ass'y	1	03	0B50017A	Power Transformer (BX-100	
12	CA80003B	Take-up Reel Hub Ass'y	1 1			(U.S.A. & Canada))	١.
13	CA80004B	Supply Reel Hub Ass'y Steel Ball 20	3		0B50009A	Power Transformer (BX-100	:
14 15	0C80007A CA80005A	Pressure Roller Ass'y	1 1		0B50010B	(Australia) & BX-100E) Power Transformer (BX-100	
16	0C80008A	Pressure Roller Spring	i		ODOUGLOD	(Others))	
17	0C80009A	Cassette Case Spring	1	04	0B08037U	Cord Bushing 4P-4 (BX-100)	
18	0C80010B	Cassette Case Holder R	1 1		0B08351A	Cord Bushing 4K-4 (BX-100E	
19	0C80043A	5P-H Connector		0.5	ODCOF CO.	(UK))	
20	0C80012A	Eject Sensor Lock Lever Spring	1 1	05	0B08533A	Power Cord (BX-100 (U.S.A.,	
21 22	0C80013A 0C80014A	Lock Lever Spring	1 1		0B08348A	Canada & Others)) Power Cord (BX-100E (UK))	
23	0C80015B	Lock Lever	î		0B08093U	Power Cord (BX-100E (CK))	
24	0C80016A	Brake Spring	1			(220V Class 2))	
25	0C80017A	Record Protector Lever	1		0B05241A	Power Cord (BX-100 (Australia))	
26	0C80018A	Cassette Case Holder L	1 1	06	0J04622B	Switch Cover Gray (BX-100	
27 28	0C80019B 0C80020A	Eject Spring Eject Lever Spring	1 1			(U.S.A., Canada & Australia) & (BX-100E)	
29	0C80020A	Eject Lever Spring	î	07	0M04407A	Voltage Selector Lock Plate Gray	
30	CA80006A	Pneumatic Damper Ass'y	1 1		3	(BX-100 (Others))	
31	0C80022B	Cassette Hold Spring	1 1	08	0B07092U	Voltage Selector (BX-100	1
32	0C80023A	Mechanism Chassis	1			(Others))	
33	0C80024A	Record Protector	1 1	L01 L02	0E03028A	BT 3x8 ⊕ Binding (Nickel) BT 4x8 ⊕ Binding	
34 35	0C80025A 0C80026A	Record Protector Holder	i	L02 L03	0E03024A 0B08583A	Plastic Rivet	
36	0C80027A	Mode Switch	3	L04	0E03031A	M3x8 ⊕ Binding (Nickel)	
37	CA80007A	Control Motor Ass'y	1				-
38	0C80028A	Control Motor Holder	1 1	B02	HA04505A	Rear Panel Ass'y BX-100	
39	CA80011A	Shut-off P.C.B. Ass'y	1 3		HA04507A	(U.S.A. & Canada) Rear Panel Ass'y BX-100 (Others)	
40 41	0C80029A 0C80030A	Back Tension Spring Reel Motor Holder	1 1		HA04508A	Rear Panel Ass'y BX-100 (Others)	
42	CA80008B	Reel Motor Ass'y	1 1			(Australia)	
43	0C80031A	Capstan Flange	1		HA04504A	Rear Panel Ass'y BX-100E (UK))	
44	0C80033A	Flywheel	1		HA04509A	Rear Panel Ass'y BX-100E	
45	0C80034A	Capstan Belt	1 1			(220V Class 2) Serial No.: A31901001 - (Black)	
46 47	CA80009A 0C80035A	Flywheel Holder Ass'y Sleeve	3			General Mon Watsonoon - (Black)	
48	0C80036A	Floating Rubber	3	01	0H04299A	Rear Panel BX-100	:
49	CA80010A	Capstan Motor Ass'y	1		HA04363A	Rear Panel BX-100E	
50	0C80037A	Insu-Lock	3	02	0B81001A	4P Pin Jack	
51	0C80040A	2P-H Connector	1 1	03	0B50017A	Power Transformer (BX-100	
52 53	0C80041A 0C80042A	4P-H Connector 9P-H Connector	1 1		0B50009A	(U.S.A. & Canada)) Power Transformer (BX-100	
L01	0C80042A	Azimuth Adjust Screw	1 1		JUJUUJUA	(Australia) & BX-100E)	
L02	0E03038A	M2x12 ⊕ Binding	3		0B50010B	Power Transformer (BX-100	
L03	0E03053A	Wire Holder	1			(Others))	
L04	0C80048A	Shim 0.03T	(3)	04	0B08037U	Cord Bushing 4P-4 (BX-100 &	
	0C80038A	Shim 0.06T	出出		0B08351A	BX-100E (220V Class)) Cord Bushing 4K-4 (BX-100E	
L05	0C80039A 0E03046A	Shim 0.1T M2.6x6 ⊕ Pan (2A)	(1)		OBOGGUIA	(UK))	
L06	0E03040A	FT M2.5x5 @ Pan	12	05	0B08533A	Power Cord (BX-100 (U.S.A.,	
L07	0E03049A	Washer 1.8mm FT	2			Canada & Others))	
L08	0E03050A	Washer 3.1mm FT	3		0B08348A	Power Cord (BX-100E (UK))	
L09	0E00222A	E-Ring 2mm	1 1		0B08093U	Power Cord (BX-100E (220V Class 2))	-
L10 L11	0E03043A 0E00698A	FT M2.5x10 ⊕ Pan E-Ring 2.5mm	1 1		0B05241A	Power Cord (BX-100 (Australia))	
L12	0E03052A	Stopper Ring 2.4mm	2	06	0J04601B	Switch Cover Black (BX-100	
L13	0E00181A	E-Ring 3mm	3	- 3		(U.S.A., Canada & Australia)	
114	0E03048A	FT M2.6x6 ⊕Pan	1 1			& BX-100E)	
L15	0E03036A	M2x4 ⊕ Pan (2A)	1 1	07	0J03948A	Voltage Selector Lock Plate Black	
L16	0E03044A 0E00691A	FT M2.5x20 ⊕ Pan M2x3 ⊕ Pan	2	L01	0E00921A	(BX-100 (Others)) BT 3x8 ⊕ Binding	
L17 L18	0E03045A	M2.6x 3 $\oplus$ Binding	2	201	JUJULIA	(Black Chromate)	
L19	0E03051A	Capstan Washer	1 1	L02	0E00915A	BT 4x8 ⊕ Binding	
L20	0E03037A	M2x5 ⊕Pan (2A)	1 1			(Black Chromate)	
L21	0E03047A	M2.6x9 ⊕ Pan	3	L03	0B08583A	Plastic Rivet	
L22	0E03041A	FT M2.5x4 ⊕ Pan FT M2.5x3.5 ⊕ Pan	2 1	L04	0E00818A	M3x8 ⊕ Binding (Black Chromate)	
L23 L24	0E03040A 0E03035A	FT M2.5x3.5 ⊕ Pan M2x3.2 ⊕ Truss	i			(Diace Ontomate)	
				-			
		1			l		<u> </u>

# MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.

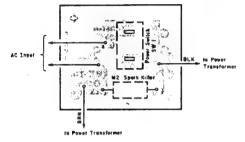
- 2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
- 3. Following transistors are interchangeable with each other.
  - a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
  - b. 2SC945, 2SC536SP, 2SC2458, 2SC2785

4. Abbreviation for part name:
 TR — Transistor, SiD — Silicon Diode, GD — Germanium Diode, ZD — Zener Diode
 RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RC — Cement Resistor,

RW - Wire Wound Resistor

CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor, CT — Tantalum Capacitor, CM — Film Capacitor, C — Mica Capacitor

# 6.1. Power Switch P.C.B. Ass'y



# 6.2. Shut-off P.C.B. Ass'y

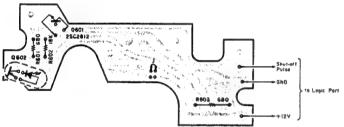


Fig. 6.2

# 6.3. Control Switch P.C.B. Ass'y

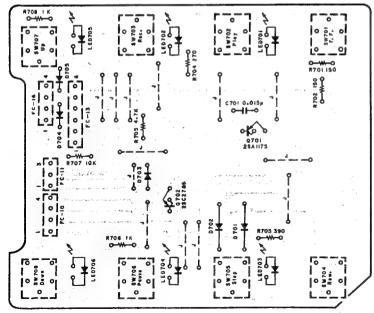


Fig. 6.3

Schematic Ref. No.	Part No.	Description
	BA04823A	Power Switch P.C.B. Asa'y (BX-100 (U.S.A. & Canada)
	BA04824A	Power Switch P.C.B. Ass'y (BX-100
		(Australia & Others) & BX-100E)
A3314	0B02573D	Power Switch P.C.B.
SW1 M2	0B70002A 0B08342A	Power Switch Spark Killer (BX-100 (U.S.A. &
М2	0B08955A	Canada)) Spark Killer (BX-100 (Australia
	0E00752A	& Others) & BX-100E) Eyelet 2x3 (2)
	0B08359A	Spark Killer Cover (BX-100 (Australia & Others) &
	0J04763A	BX-100E) Power Switch Holder (1)
	0E00612A	M3x6 ⊕ Pan (2A) (2)
	CA80011A	Shut-off P.C.B. Ass'y
	0C80047A	Shut-off P.C.B.
Q601 Q602	0B06388A 0B06389A	TR 2SC2812 Photo Reflector NJL5141
R601,603 R602	0B09840A 0B09841A	RK 680 Leadless RK 18K Leadless
	BA05077A	Control Switch P.C.B. Ass'y
	0В60036В	Control Switch P.C.B.
Q701	0B06455A 0B06456A	TR 2SA1175 TR 2SC2785
Q702 LED701	0B06334A	LED TLG124A
703,704	0700000	GRN
LED702 705,706	0B06333A	LED TLR124A RED
D701,702 D703,704 705	0B06181A 0B06398A	SiD 1SS53 SiD 1SS176
R701,702	0B09657A	RK 150 1/6W J
R703 R704	0B09667A 0B09663A	RK 390 1/6W J RK 270 1/6W J
R705	0B09693A	RK 4.7K 1/6W J
R706,708	0B09677A	RK 1K 1/6W J
R707 C701	0B09701A 0B05557A	RK 10K 1/6W J CM 0.015µ 50V J
SW701-708	0B70004A	Touch Switch
	0J04744A	4.3mm LED Reflector (6)
	BA05078A	Timer Switch P.C.B. Ass'y
	0B60037B	Timer Switch P.C.B.
R709	0B09687A 0B07437A	RK 2.7K 1/6W J Slide Switch 2-3
SW601	0B07437A 0B81011A	Dip Mate 4P (1)

# 6.4. Timer Switch P.C.B. Ass'y

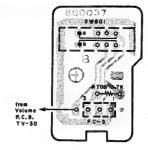
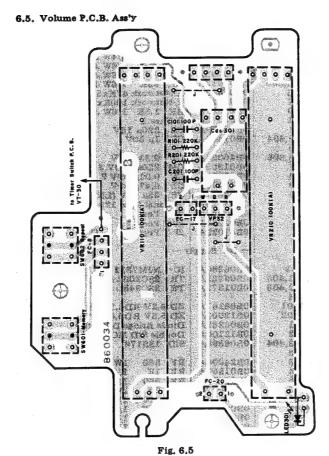


Fig. 6.4



# 6.6. Dolby NR P.C.B. Ass'y

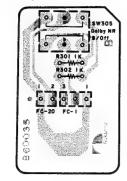


Fig. 6.6

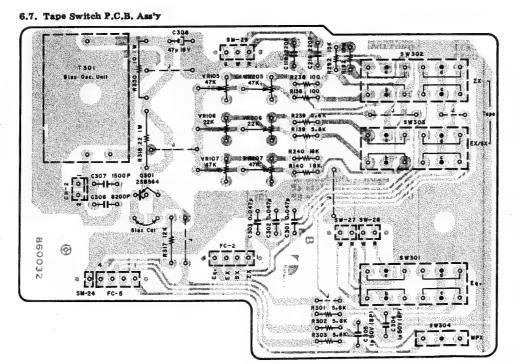


Fig. 6.7

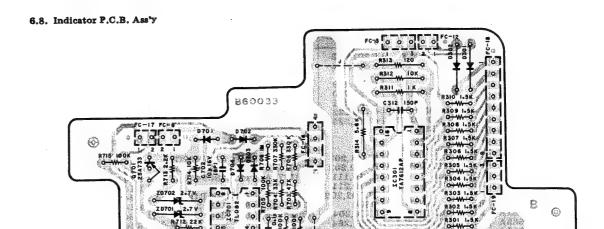
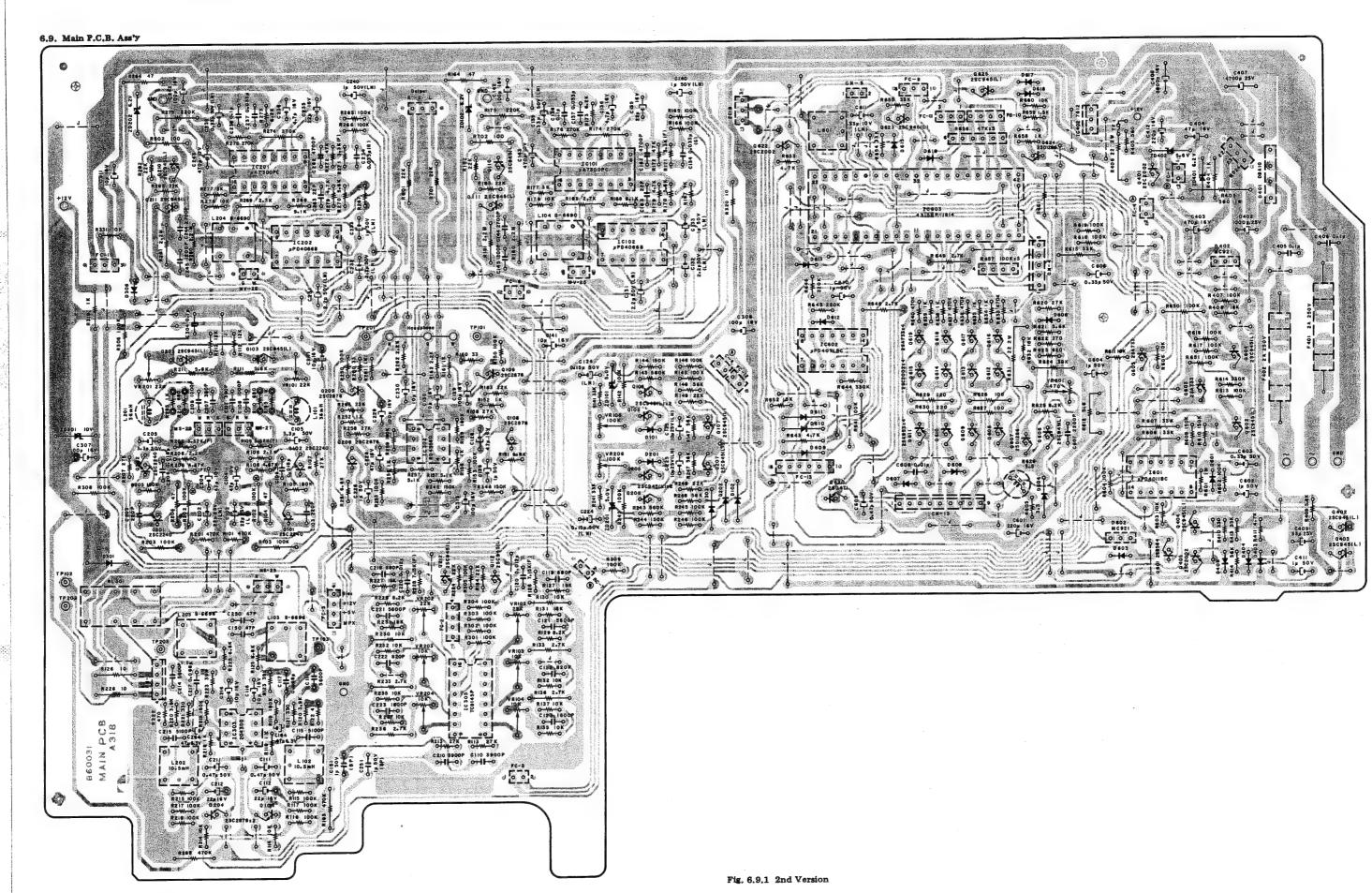
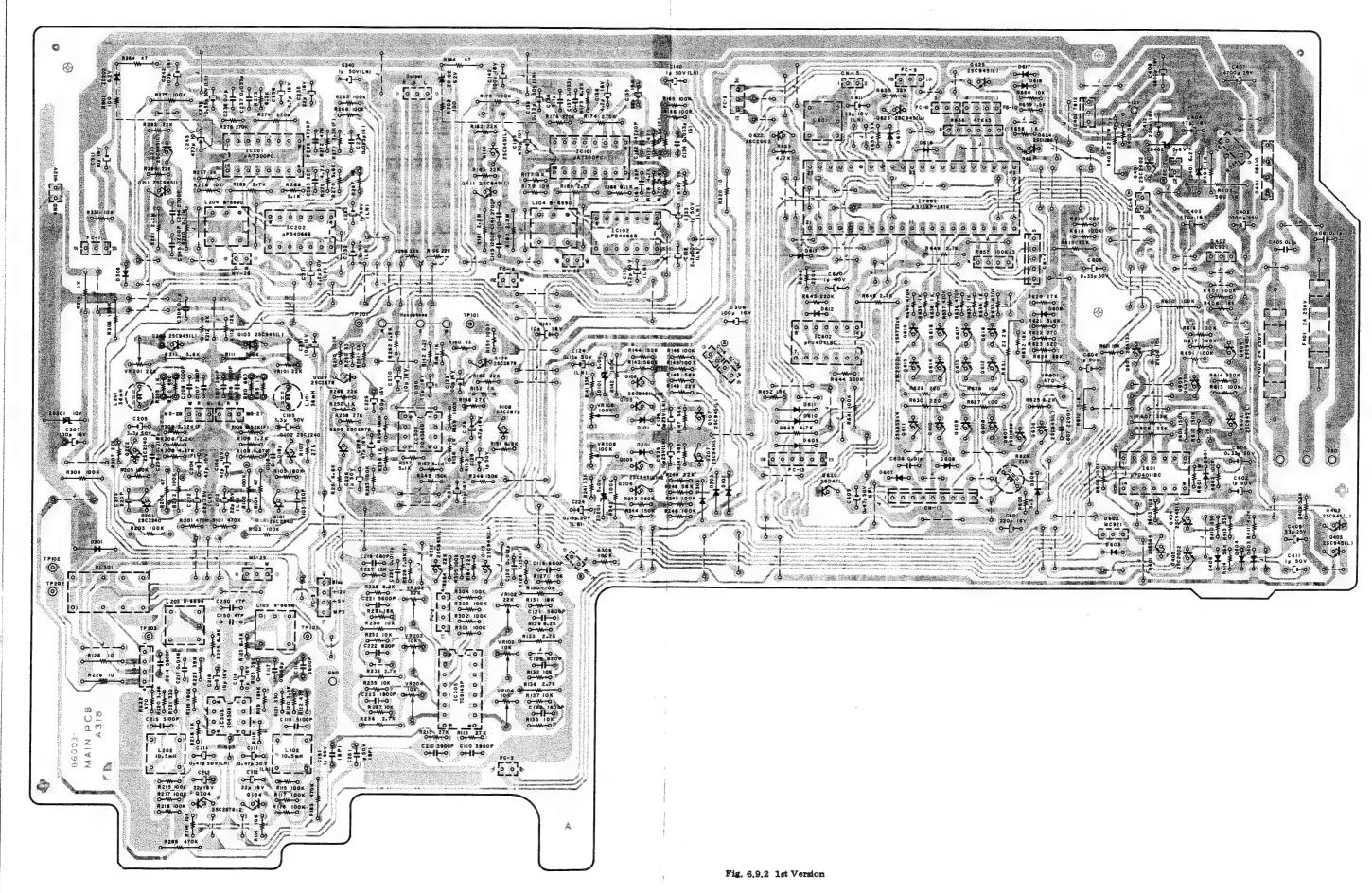


Fig. 6.8

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA05075A	Volume P.C.B. Ass'y		BA05074A	Indicator P.C.B.
VR110,210	0B60034B 0B31002A	Volume P.C.B. Slide Volume 100K	IC301	0B60033B 0B06369A	Indicator P.C.B. IC TA7612AP
	00069994	(A)	IC701	0B11031A	IC TL092
LED301 R101,201	0B06333A 0B09733A	LED TLR124A RED RK 220K 1/6W J	Q701 ZD701,702	0B06013A 0B06191A	TR 2SA733 (P,Q) ZD 2.7V RD2.7E
C101,201	0B09282A	CC 100P 50V K	D301,302	0B06181A	SiD 18853
SW601,602	0B07462A	Push Switch	D701,702	0B06398A	SiD 188176
Cds301	0B06325B	Photocoupler MCD7214F	703,704	0000014	
	0B81002A	Dip Mate 2P (1)	R301-310 R311	0B09681A 0B01857A	RK 1.5K 1/6W 3
	0B81011A	Dip Mate 4P (2)	R312	0B01888A	RK 10K 1/4W
	0B81012A	Dip Mate 5P (1)	R313	0B09797A	RK 120 1/4W J
			R314	0B01887A	RK 5.6K 1/4W J
	BA05076A	Dolby NR Switch P.C.B. Ass'y	R701,702 705,709	0B09725A	RK 100K 1/6W J
	0В60035В	Dolby NR Switch P.C.B.	710,715 R703 R704	0B09717A 0B09713A	RK 47K 1/6W 3 RK 33K 1/6W 3
R301.302	0B09677A	RK 1K 1/6W J	R706,707	0B09737A	RK 330K 1/6W
SW 305	0B70008A	Push Switch	R708	0B09749A	RK 1M 1/6W J
	0B81012A	Dip Mate 5P (1)	R711 R712	0B09677A 0B09709A	RK 1K 1/6W 3
	0J04768A	Earth Plate A (1)	R713	0B09685A	RK 2.2K 1/6W J
	BA05073A	Tape Switch P.C.B.	R714	0B09701A	RK 10K 1/6W J
		Ass'y	C312	0B09281A 0B09868A	CC 150P 50V K CF 0.1µ 50V J
	0B60032B	Tape Switch P.C.B.	C701 C702	0B09163A	CF 0.1μ 50V J CE 10μ 16V (BP)
Q301	0B06332A	TR 2SB564M	FC18,19	0B02356A	JP Connector 12P
T301	0B06688C	Bias Osc, Unit	·		(
VR105,107	0B32010A	Semi-fixed VR 47K		0B81011A 0B81012A	Dip Mate 4P (2 Dip Mate 5P (2
205,207 VR106,206	0B32009A	Semi-fixed VR 22K		OB61U1ZA	Dip Mate 5P (1
R138,238	0B09653A	RK 100 1/6W J			
R139,239 301,302	0B09695A	RK 5.6K 1/6W J			
303 R140,240	0B09707A	RK 18K 1/6W J			
R192,292	0B09705A	RK 15K 1/6W J			
R317	0B09263A	RK 12K 1/4W J		1	
R318	0B09831A	RF 22 1W J			
R350 C118,218	0B09837A 0B09283A	RF 10 1W J CC 220P 50V K	i		
C301,302 303	0B05796A	CM 0.047µ 50V J			
C304,305	0B09187A	CE 1µ 50V (BP)		}	
C306	0B09828A	CP 8200P 100V J			
C307 C308	0B41229A 0B01403A	CP 1500P 100V J CE 47µ 16V	1		
SW 301-304	0B70005A	Push Switch (1)	1		
	0B81010A	Dip Mate 3P (1)		1	
	0B81011A	Dip Mate 4P (2)			
	0B81012A	Dip Mate 5P (1) 2P-S Post (1)			
	0B81051A 0J04768A	2P-S Post (1) Earth Plate A (1)		1	

201.020 0806142A TR 2052440 (FL) C112.21 0806057A CM 6000 600 FoV J 2010 For Ship Control of the Control of the Control of Control o	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
R109,200   D096973A RK 680 L/GWJ   S06,306   R107,237   R107,207   R1 K 1 K 1/GWJ   R107,237   R1 K 1 K 1/GWJ   R107,237   R1 K 1 K 1/GWJ   R107,237   R108,238   R	Ref. No.  2101,102 201,202 201,202 2103,203 D301 101,201 7R101,201 2102,202 2103,203 308 1104,204 1105,205 1106,206	BA05063A  - PB Eq. Am 0B06142A  0B01872A 0B12009A 0B01909A 0B03919B 0B32009A 0B09741A 0B09330A  0B01889A  0B01706A 0B09731A 0B09685A 0B09711A	Main P.C.B. Ass'y  ap. —  TR 2SC2240 (BL)  TR 2SC945L (P.Q)  ZD 10V RD10JB2T  SiD 1S1555  Inductor 36mH  Semi-fixed VR 22K  RK 470K 1/6W J  RK 100K 1/4W J  (Noiseless)  RK 100K 1/4W J  RK 47 1/4W J  RK 480K 1/6W J  RK 180K 1/6W J  RK 2.2K 1/6W J  RK 27K 1/6W J	Ref. No.  R301,302 303,304 305 C119,219 C120,220 C121,221 C122,222 C123,223  IC101,201 IC102,202 Q110,111 210,211 ZD102,202 D306 L104,204 R164,264 R165,166	0B09725A  0B05571A 0B05843A 0B05659A 0B09993A 0B01913A  - Dolby NR  0B06200A 0B06144A 0B01872A  0B06187A 0B06181A 0B06890A 0B05923A	RK 100K 1/6W J  CM 680P 50V J CM 0.012μ 50V J CM 5600P 50V J CM 820P 50V J CM 1800P 50V J  IC μΑ7300PC IC μΡD4066BC TR 2SC945L (P,Q)  ZD 6.2V RD6.2EB3 SID 1SS53 L-C Block FF 47 1/6W J	Ref. No.  Q105,106 107,205 206,207 ZD101,201 D101,201 D102,202 303 VR108,208 R141,241 R142,242 R143,243 R144,244 R145,146 245,246 R147,148 247,248 R149,249 R320	- Meter Am  0B01872A  0B12101A 0B06398A 0B06181A  0B32011A 0B09713A 0B09743A 0B09729A 0B09729A 0B09729A 0B09729A	D. —  TR 2SC945L (P,Q)  ZD 5V 5C-1 SiD 1SS176 SiD 1SS53  Semi-fixed VR 100K RK 33K 1/6W J RK 100K 1/4W J RK 560K 1/6W J RK 150K 1/6W J RK 100K 1/6W J RK 56K 1/6W J RK 56K 1/6W J RK 56K 1/6W J RK 56K 1/6W J RK 22K 1/6W J RF 10 1/4W J	Ref. No.  R648,649 R652 R653 R654,655 R656 R657 R659 R661 C601 C602,604 610 C603,606 C607 C608 C609 C611 TF1 CN3	0B05629A 0B09705A 0B09693A 0B09693A 0B09813A 0B09824A 0B09824A 0B40079A 0B40024A 0B01802A 0B40178A 0B40178A 0B09290A 0B09817A 0B08715A 0B02245A 0B02243A	Description  RK 2.7K 1/4W J RK 15K 1/6W J RK 4.7K 1/6W J RK 33K 1/6W J R. Network 47Kx5 R-Network 100Kx5 R. 1.5K 1/6W J R Fuse 1 CE 220μ 16V CE 1μ 50V CE 0.33μ 50V CM 2200P 50V J CC 0.01μ 50V Z CE 0.47μ 50V CE 33μ 10V (LN) Thermal Fuse 129 9P-T Post 2P-T Post (1)
C307   OB01400A   OE 100µ 18V   OB00242A   OB00400A   OB00242A   OB00242A   AP-T Post   OB00242A   OB00442A   OB00442A   OB00442A   OB00444A	1.109,209 1.111,211 1.112,212 1.195,295 1.319 1.102,202 1.103,203 1.104,204 1.105,205 1.106,206 1.107,207 1.108,208	0B22287A 0B09673A 0B01887A 0B01887A 0B09677A 0B09677A 0B09137A 0B09283A 0B01403A 0B01863A 0B05832A 0B41002A 0B05550A	RM 3.32K 1/4W F RK 680 1/6W J RK 5.6K 1/4W J RK 12K 1/6W J RK 1K 1/6W J RK 1K 1/6W J CC 22\(\text{2}\) 25V (LN) CC 22\(\text{2}\) 50V K CE 47\(\text{4}\) 16V CE 3.3\(\text{4}\) 50V J CP 390P 100V J CM 1000P 50V J	306,309 R167,267 R168,268 R169,269 R170,270 R171,271 R172,272 R173,273 R174,274 R175,275 R176,276 R177,277 R178,278	0B09700A 0B05629A 0B09695A 0B22286A 0B09717A 0B09696A 0B05625A 0B05625A 0B09735A	RK 9.1K 1/6W J RK 2.7K 1/4W J RK 5.6K 1/6W J RM 3.3K 1/4W F RK 47K 1/6W J RK 6.2K 1/6W J RK 270K 1/4W J RK 270K 1/4W J RK 270K 1/6W J RK 3K 1/6W J	IC601 IC602 IC603 Q601 Q602,604 606,621 623,625	0B09570A 0B09148A 0B01400A - Logic - 0B06178A 0B06214A 0B11020A 0B06332A 0B01872A	CE 0.15µ 50V (LN) CE 10µ 25V (LN) CE 100µ 16V  IC µPD4011BC IC µPD4071BC IC TMP4315BP- 1814 TR 2SB564M TR 2SC945L (P,Q)	Q401,405 Q402,403 404 ZD401 ZD402 D401 D402 D403,404 406 R403	- DC Suppl 0B06380A 0B06322A 0B01872A 0B06167A 0B12003A 0B06282A 0B12100A 0B06398A 0B24006A	IC NJM7812 TR 2SC2002 (K,L) TR 2SC945L (P,Q) ZD 6.2V RD6.2EB3 ZD 5.6V RD5.6JBZ Diode Bridge DBA10 Double SiD MC921 SiD 1SS176 RF 560 1W J
216,217 R118,218 R18,218 R18, 16W J G19,239 G19327A CE 0.33 \(\frac{1}{2}\) 080969731A RK 18K 1/6W J G139,239 G101412A CE 10\(\frac{1}{2}\) 10809665A RK 470 1/6W J G142,242 G143,243 G	307 L301 N1 C303 104,204 102,202 103,203 113,213 114,214 115,116	0B01400A 0B90011A 0B02242A — Rec. Eq. Al 0B06387A 0B06299A 0B00686A 0B09711A 0B09701A	CE 100µ 16V DS Relay 4P-T Post mp.— IC 2043DD TR 2SC2878 Trap Coil 10.5mH L-C Block RK 27K 1/6W J RK 10K 1/6W J	R179,279 R180,181 280,281 R182,183 282,283 R702,802 C131,132 231,232 C133,140 233,240 C134,234 C135,235 C136,236	0B05671A 0B09709A 0B01679A 0B09332A 0B09223A 0B09240A 0B01862A 0B01402A	RK 2.2M 1/4W J RK 22K 1/6W J RK 100 1/4W J CE 2.2μ 50V (LN) CE 1μ 50V (LN) CP 0.033μ 100V G CE 22μ 16V CE 4.7μ 16V	Q603,606 616,617 618,619 Q607,624 Q608,609 610,611 Q612,613 614,615 Q620 Q622 D601,603 606,607	0B06013A 0B06371A 0B06372A 0B06322A 0B06066A 0B10023A	TR 2SA733 (P,Q)  TR 2SD1286 TR 2SA953 (K,L)  TR 2SC2002 (K,L)  TR 2SD471 (L,M) TR 2SC2002 (K)	R405 R406 R407 R408 R409 R411 R411 R413 R414 C402 C403 C404	0B09671A 0B24007A 0B09725A 0B09707A 0B09695A 0B09665A 0B09613A 0B09713A 0B09719A 0B40151A 0B01392A 0B01392A	RK 1K 1/4W J RK 560 1/6W J RF 22 2W J RK 100K 1/6W J RK 5.6K 1/6W J RK 330 1/6W J RK 4.7K 1/6W J RK 33K 1/6W J RK 33K 1/6W J CE 1000\(\mu\) 25V CE 470\(\mu\) 16V CC 47\(\mu\) 16V CC 0.1\(\mu\) 50V Z
C116,215 OB01412A CE 10\(\mu\) 16V OB09866A CF 0.068\(\mu\) 50V J OB09697A CL51,251 OB09187A CE 1\(\mu\) 50V J OB09697A OB09875A CE 1\(\mu\) 50V J OB09697A OB09877A CE 1\(\mu\) 50V J OB09697A CE 1\(\mu\) 50V J OB09697A CE 1\(\mu\) 50V J OB09697A OB09697A OB09187A CE 1\(\mu\) 50V (BP) C151,251 OB09187A CE 1\(\mu\) 50V (BP) C164,264 OB09187A CE 1\(\mu\) 50V OB09697A OB09699A OB09697A OB0969A OB0	118,218 119,219 120,220 121,221 122,222 123,223 125,225 126,226 185,285 110,210	0B09731A 0B09691A 0B09665A 0B09669A 0B09715A 0B09697A 0B05936A 0B01684A	RK 180K 1/6W J RK 3.9K 1/6W J RK 330 1/6W J RK 470 1/6W J RK 39K 1/6W J RK 6.8K 1/6W J RK 10 1/4W J RK 470K 1/4W J CM 3900P 50V J	C138,238 C139,239 C141,241 311 C142,242 C143,243 C144,244 C145,245 C162,262	0B01780A 0B09327A 0B01412A 0B01400A 0B05884A 0B09189A 0B05687A 0B05652A 0B09279A	CM 0.1μ 50V J CE 0.33μ 50V (LN) CE 10μ 16V CE 100μ 16V CE 470μ 10V CM 2700P 50V J CM 1200P 50V J CM 4700P 50V J CC 22P 50V K	613 615-618 D602 D604,609 610,611 L601 VR601 R602,604 613,616 617,618 619,651 R603,606	0B06181A 0B06689A 0B32007A 0B09749A 0B09725A	SiD 18853 L-C Block Semi-fixed VR 470 RK 1M 1/6W J RK 100K 1/6W J	C407 C408 C409 C411	0B09799A 0B09798A 0B40011A 0B01405A 0B01398A 0B08676B 0E00507A	CE 4700μ 25V CE 6800μ 16V CE 33μ 16V CE 1μ 50V CE 220μ 16V Heat Sink (1) Nut Hex. M3 (Chromate) (1) M3x6 ⊕ Pan (2A)  BT 3x6 ⊕ Binding (Chromate) (2)
VR102,202 0B32009A Semi-fixed VR 10K R162,262 0B09685A RK 2.2K 1/6W J R625 0B096706A Coil 3.5 VR103,104 0B32008A Semi-fixed VR 10K R162,262 0B09685A RK 2.2K 1/6W J R627,628 0B01679A RK 100 1/4W J	116,216 116,216 117,217 150,250 151,251 164,264	0B01412A 0B01412A 0B09866A 0B09280A 0B09187A 0B09815A	CM 5600P 50V J CM 5100P 50V J CE 10μ 16V CF 0.068μ 50V J CC 47P 50V J CE 1μ 50V (BP) CE 47μ 6.3V	Q108,109 208,209 R150,153 250,253 R151,251 R152,156 161,252	0B06299A 0B09725A 0B09697A 0B09677A	TR 2SC2878  RK 100K 1/6W J  RK 6.8K 1/6W J  RK 1K 1/6W J	611,660 R605 R607,608 615 R609,610 R612 R614,644 R620 R621 R622	0B05509A 0B09729A 0B09217A 0B09737A 0B09711A 0B09695A 0B09663A	RK 3.3 1/4W J RK 33K 1/4W J RK 150K 1/6W J RF 5.6 1/4W J RK 330K 1/6W J RK 27K 1/6W J RK 5.6K 1/6W J RK 270 1/6W J RK 270 1/6W J RK 620 1/6W J		0B86031B 0B81002A 0B81010A 0B81011A	Main P.C.B. Dip Mate 2P (7) Dip Mate 3P (6) Dip Mate 4P (3) Dip Mate 6P (2)
R132,135   0B09701A   RK 10K 1/6W J   313   C130,230   OB01412A   CE 10μ 16V   638,639   658   R641,650   C130,230   C13	112,212 R102,202 R103,104 203,204 127,227 128,228 129,229 130,230 131,231 132,135 137,232 235,237	0B09705A 0B22327A 0B09699A 0B01888A 0B09707A 0B09701A	RK 2SC94bL (F,Q) Semi-fixed VR 22K Semi-fixed VR 10K RK 15K 1/6W J RM 7.15K 1/4W F RK 8.2K 1/6W J RK 10K 1/4W J RK 18K 1/6W J RK 10K 1/6W J	R169,269 R160,260 R162,262 R163,263 701,802 R345,346 C126,226 C128,228 C129,229 313	0B09731A 0B09641A 0B09685A 0B09709A 0B09729A 0B01405A 0B01403A 0B01400A	RK 180K 1/6W J RK 33 1/6W J RK 2.2K 1/6W J RK 22K 1/6W J RK 150K 1/6W J CE 1µ 50V CE 47µ 16V CE 100µ 16V	R624 R625 R626 R627,628 R629,630 R631 R632 R633,636 637,640 R634,635 638,639 658 R641,650 R643	0B09699A 0B06706A 0B01679A 0B01933A 0B24007A 0B09707A 0B09677A	RK 39K 1/4W J RK 8.2K 1/6W J Coil 3.5 RK 100 1/4W J RK 220 1/4W J RF 22 2W J RK 18K 1/6W J RK 470K 1/6W J RK 1K 1/6W J RK 100K 1/4W J RK 4.7K 1/4W J			





### 7. SCHEMATIC DIAGRAMS

### 7.1. Attention to Servicemen

- (1) Caution
- (a) If a part is in need of removing (or replacing) for service, it should be remounted (or replaced with specified parts) by the same methods as before after servicing.
   (b) The appliance should be used only specified parts for
- (b) The appliance should be used only specified parts for preventing a risk of fire and electric shock and maintaining the characteristics.
- (c) Before returning the repaired appliance to a customer, check to insure that the exposed part is accurately insulated from the Power Supply by measuring the leakage current or the insulation resistance between them.
- (2) Parts Replacement
  Following parts shall be replaced with the specified ones.
  Refer to the parts list.

- (a) Power Supply Circuit
  Power Cord
  Power Transformer: T1
  Fuses: F401, 402
- (b) Power Switch P.C.B. Ass'y
  Power Switch: SW1
  Spark Killer: M2
- (c) Tape Switch P.C.B. Ass'y
  Power Transistor: Q301
- Fail Safe Type Resistor: R318, 350

  (d) Main P.C.B. Ass'y
  Regulator IC: IC402

Power Transistors: Q601, 607, 620, 624 Diode Bridge: D401 Fail Safe Type Resistors: R164, 264, 320, 403, 406, 612,

631 Thermal Fuse: TF1

# 7.2. IC Block Diagrams

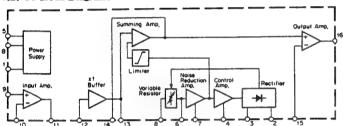


Fig. 7.2.1 Dolby NR IC  $\mu$ A7300PC

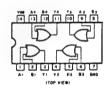


Fig. 7.2.2 OR Gate C-MOS IC µPD4071BC

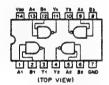


Fig. 7.2.3 NAND Gate C-MOS IC µPD4011BC

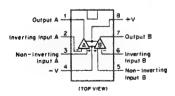


Fig. 7.2.4 Operational Amp. IC4556D, 2043DD, TL092

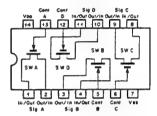


Fig. 7.2.5 Bilateral Switch C-MOS IC µPD4066BC

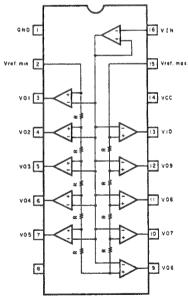


Fig. 7.2.6 Level Meter Driver TA7612AP

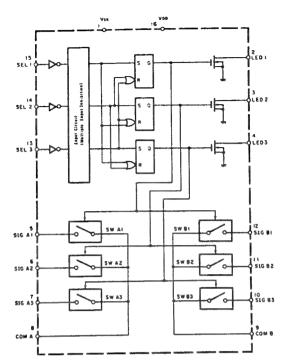


Fig. 7.2.7 Analog Switch Selector TC9145P

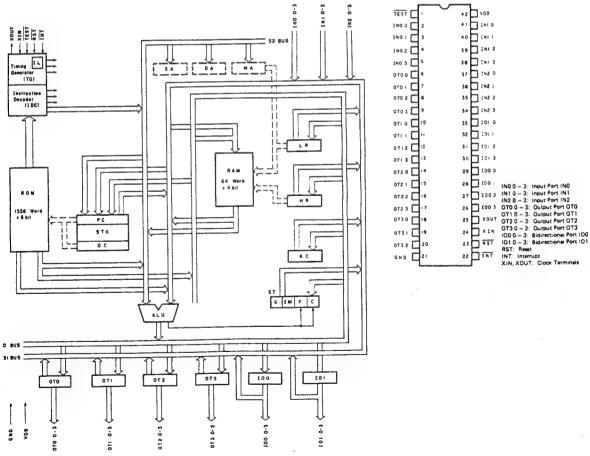
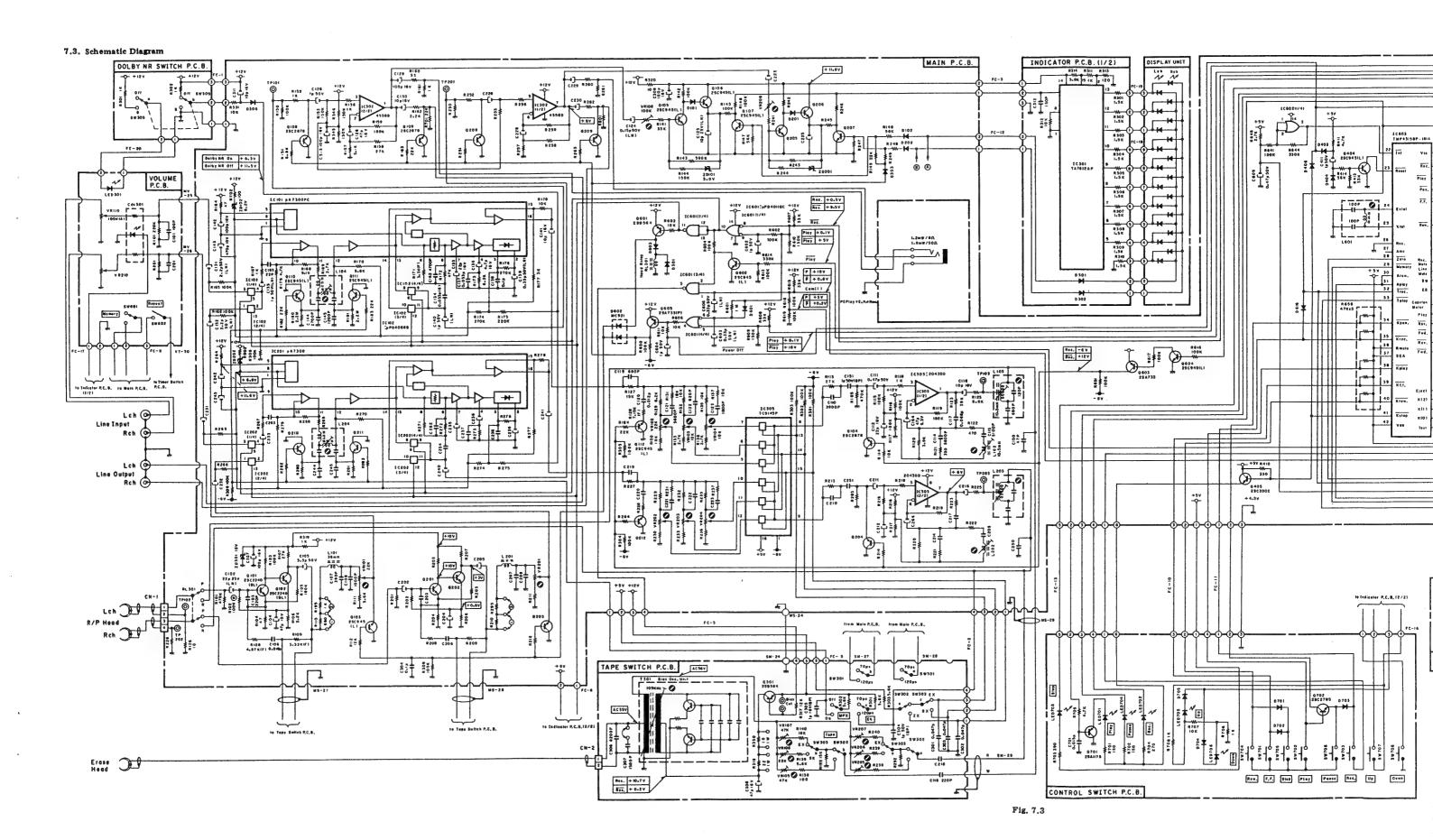


Fig. 7.2.8 4-Bit Micro-processor TMP4315BP-1814



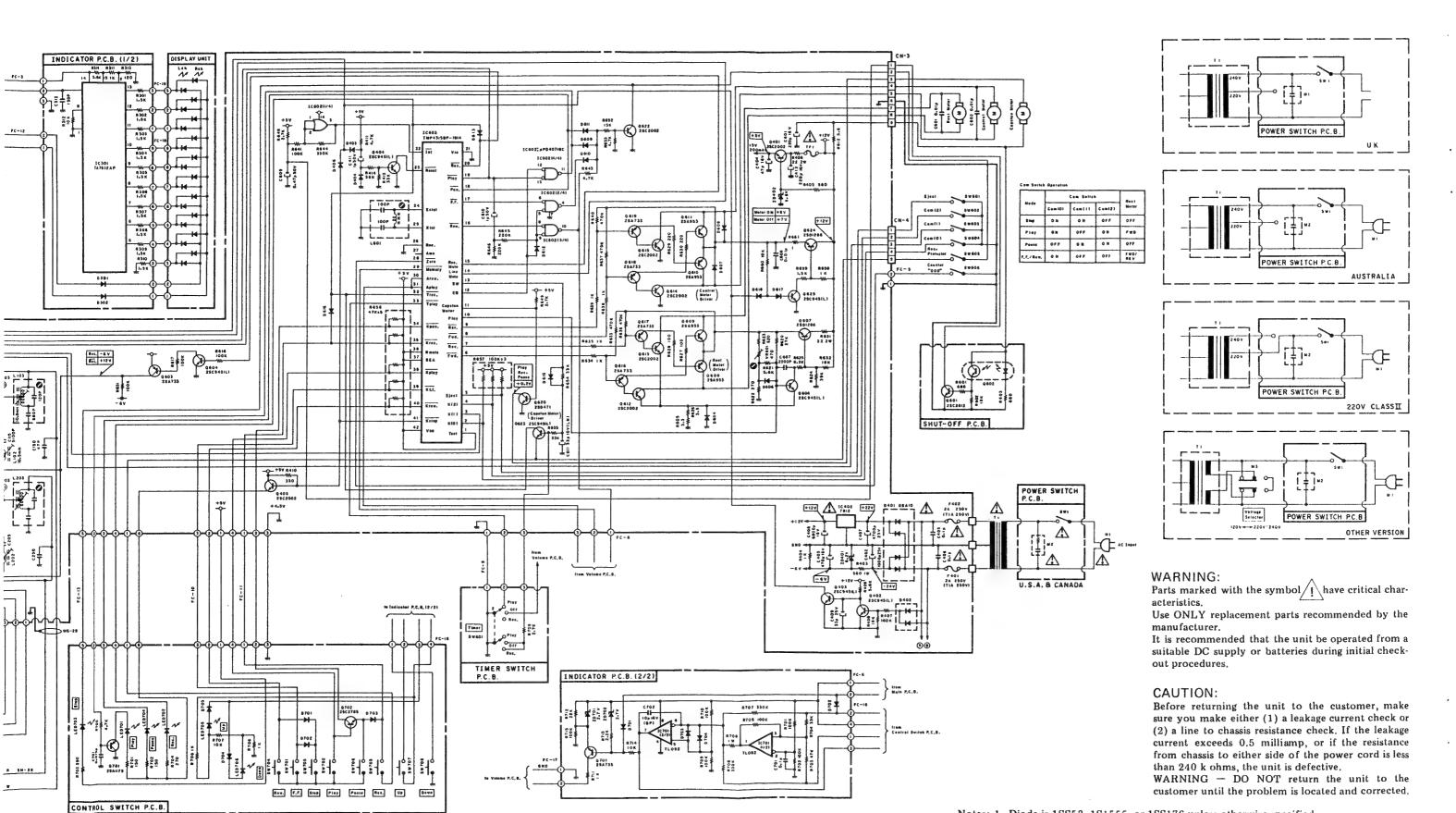
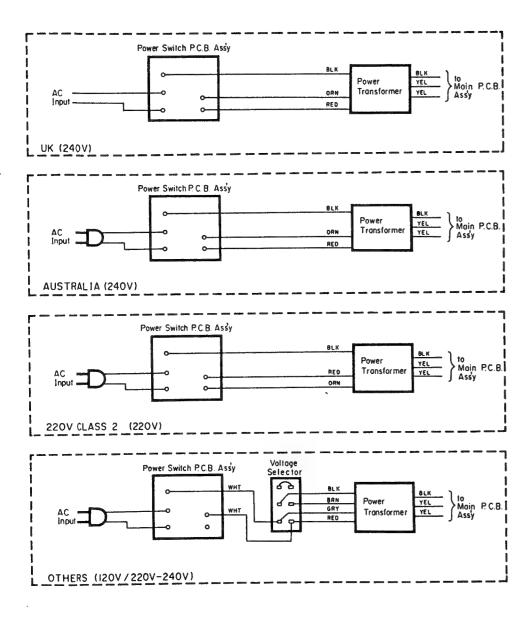


Fig. 7.3

Notes: 1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.

- 2. Resistor and capacitor marked with \* show typical value.
- 3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
- 4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other,

# 8. WIRING DIAGRAM



Notes: 1. Table of wire colors

 BRN — Brown
 BLU — Blue

 RED — Red
 VIO — Violet

 ORN — Orange
 GRY — Gray

 YEL — Yellow
 WHT — White

 GRN — Green
 BLK — Black

2. Component side view of the P.C.B. is illustrated unless otherwise specified.

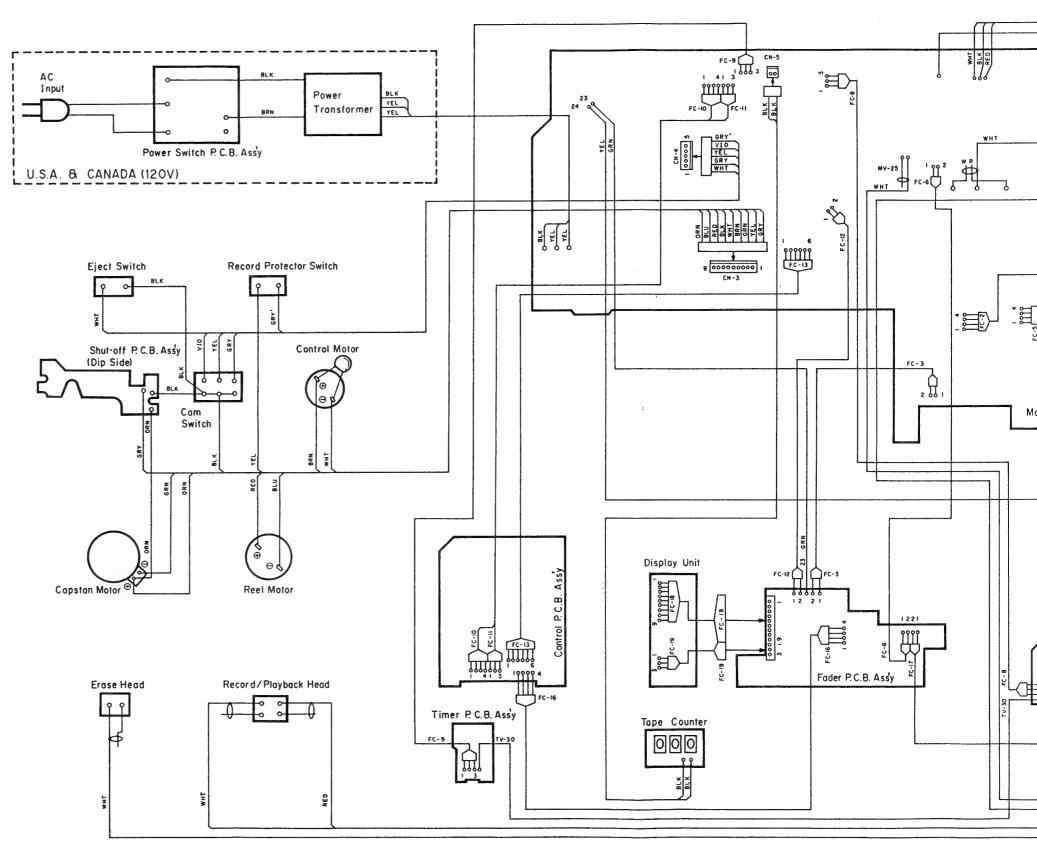


Fig. 8

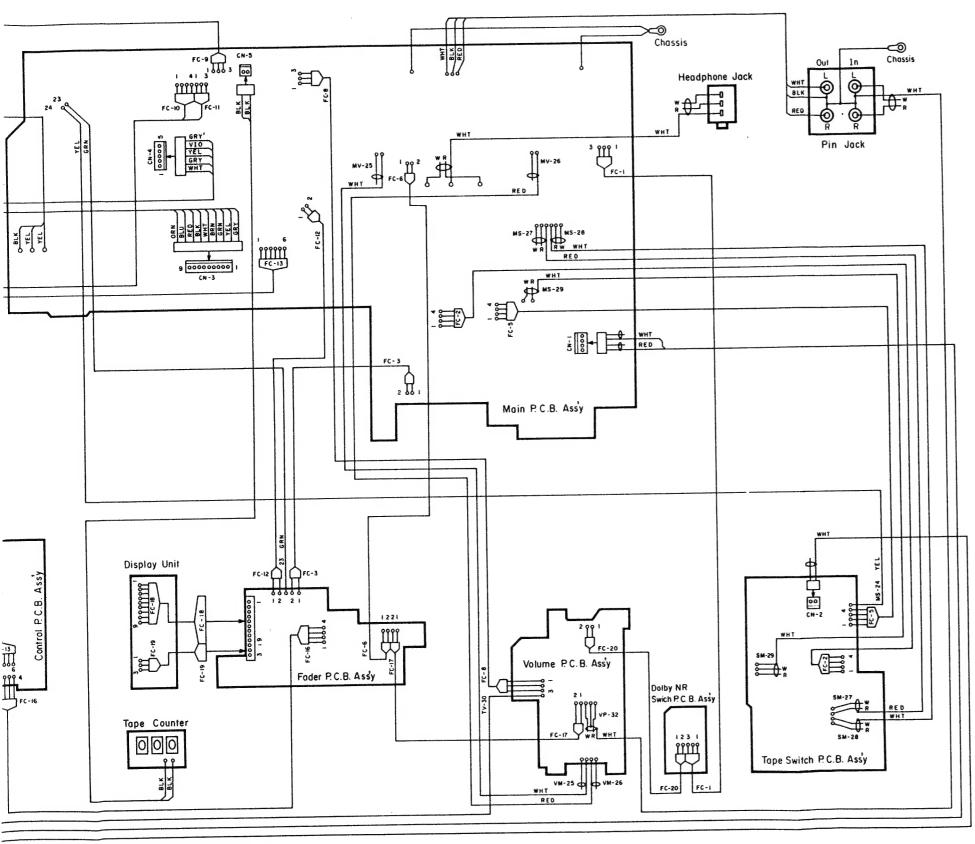
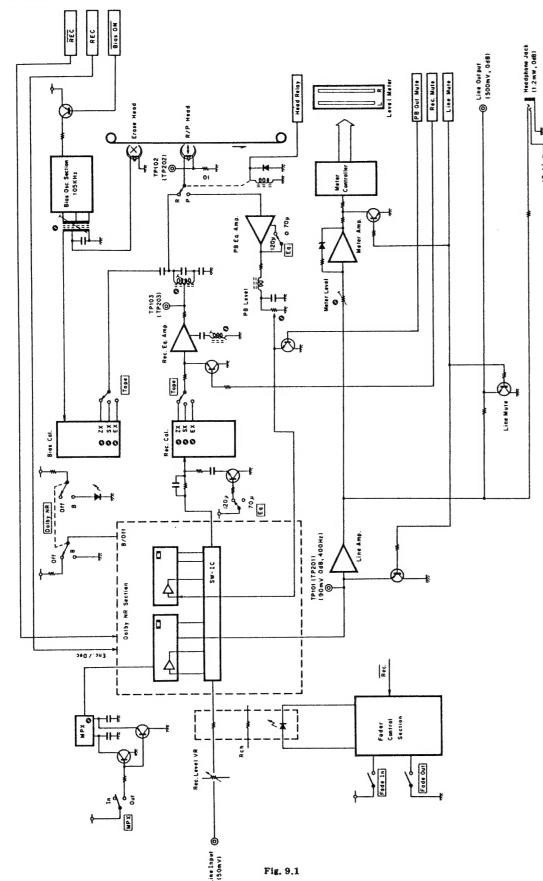


Fig. 8

# 9. BLOCK DIAGRAMS

# 9.1. Amplifier Section



# 9.2. Mechanism Control Section

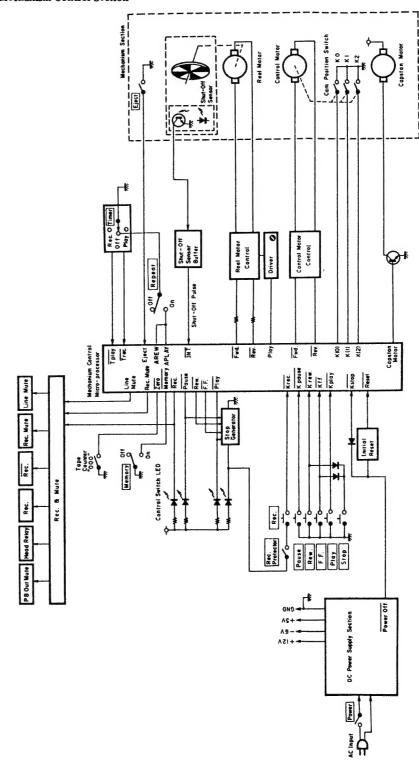


Fig. 9.2

# TIMING CHART AND EQ. AMP. FREQUENCY RESPONSE

# 10.1. Timing Chart (1) Overall Timing Chart

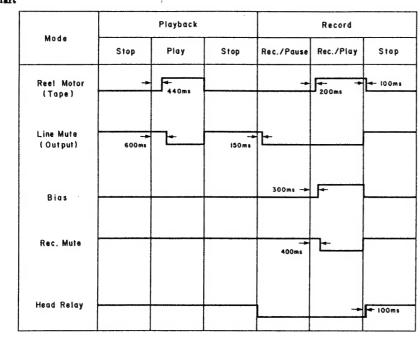


Fig. 10.1.1

# (2) Mechanism Control Timing Chart

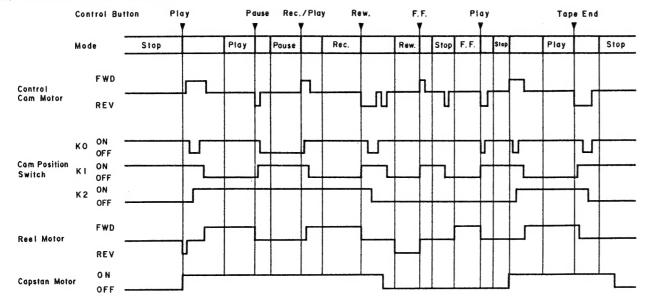


Fig. 10,1,2

# 10.2. Eq. Amp. Frequency Response (1) Playback Frequency Response

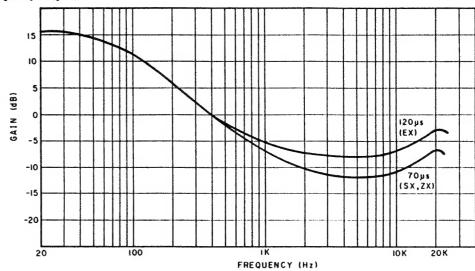


Fig. 10.2.1

# (2) Record Current Frequency Response

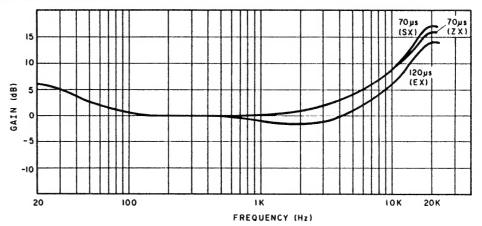


Fig. 10.2.2

### SPECIFICATIONS 11.

Track Configuration . . . . . 4 Tracks/2-Channel Stereo

Heads . . . . . . . . . . . . . 2 (Erase Head x 1, Record/Playback Head x 1)

Motors (Tape Transport) . . . . DC Servo Motor (Capstan Drive) x 1

DC Motor (Reel Drive) x 1

(According to country of sale)

Power Consumption . . . . . . . 23 W max.

Tape Speed . . . . . . . . . . . 1-7/8 ips. (4.8 cm/sec.) ±0.5% Wow-and-Flutter ..... Less than 0.11% WTD Peak Less than 0.06% WTD RMS

Frequency Response . . . . . . 20 Hz-20,000 Hz (recording level -20 dB)

Signal-to-Noise Ratio . . . . . . Dolby B-Type NR on <70 \mus, ZX tape>

Better than 62 dB (400 Hz, 3% THD, IHF A-WTD RMS)

Total Harmonic Distortion . . . . Less than 1.0% (400 Hz, 0 dB, ZX, EXII tape)

Less than 1.2% (400 Hz, 0 dB, SX tape)

Erasure . . . . . . . . . . . . Better than 60 dB (100 Hz, 0 dB) Separation . . . . . . . . . . Better than 36 dB (1 kHz, 0 dB) Crosstalk . . . . . . . . . . . Better than 60 dB (1 kHz, 0 dB)

Bias Frequency ..... 105 kHz Input (Line) ...... 50 mV, 30 k $\Omega$ 

Output (Line) ..... 0.5 V (400 Hz, 0 dB) 2.2 kΩ (Headphones) . . . . . . 1.2 mW (400 Hz, 0 dB) 8 Ω load

Fast-Winding Time ...... Approx. 85 seconds (with C-60 cassette) 

16-15/16 (W) x 4-5/16 (H) x 9-7/8 (D) inches

Approximate Weight . . . . . . . 5.5 kg

12 lb, 2 oz

Specifications and appearance design are subject to change for further improvement without notice.

Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.

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